



STATEMENT OF BASIS

Steel Dust Recycling, LLC
Millport, Lamar County, Alabama
Facility No. 408-0010

This proposed renewal to the Title V Major Source Operating Permit (MSOP) is issued under the provisions of ADEM Admin. Code r. 335-3-16. The above-referenced applicant has applied to renew the existing Title V Permit, which was originally issued on January 6, 2014. The applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans, and other documents, which were submitted on July 3, 2018, and are attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit.

The current MSOP was issued on January 6, 2014, with an expiration date of January 5, 2019. Per ADEM Rule 335-3-16-.12(2), an application for permit renewal shall be submitted at least six (6) months, but not more than eighteen (18) months, before the date of expiration of the permit. Based on this rule, the application for renewal was due to the Department no later than July 5, 2018. An application for permit renewal was received by the Department on July 5, 2018. Additional information was requested on July 16, 2018, and received on July 19, 2018.

Skyler Sanderson
Industrial Minerals Section
Energy Branch
Air Division

DRAFT
Date

FACILITY DESCRIPTION

Steel Dust Recycling, LLC (hereinafter, "SDR") is a secondary smelting and refining of nonferrous metals facility located in Millport, Lamar County, Alabama. SDR utilizes three Waelz Kilns to produce Waelz Zinc Oxide (WZO) and Waelz Iron Product (WIP) from dust generated by electric arc furnaces (EAF) at steel mini-mills. The plant is comprised of the following processes:

Feed Processing Buildings w/ Four Baghouses

Waelz Kiln No. 1 w/ Baghouse

Waelz Kiln No. 2 w/ Baghouse

Waelz Kiln No. 3 w/ Baghouse

Transition and Storage Buildings w/ Three Baghouses

Two Emergency Engines

The facility is a major source of Particulate Matter (PM), Nitrogen Oxide (NO_x), Carbon Monoxide (CO), Sulfur Dioxide (SO₂), and Volatile Organic Compound (VOC) emissions.

RENEWAL NOTES:

1. The following permits were issued since the last MSOP renewal or modification:

Permit No.	Description	Issuance Date
408-0010-X001	No. 1 Feed Process Building w/ 3 Baghouses	July 29, 2016
408-0010-X002	Waelz Kiln No. 1 w/ Baghouse	July 29, 2016
408-0010-X004	Waelz Kiln No. 2 w/ Baghouse	July 29, 2016
408-0010-X006	Waelz Kiln No. 3 w/ Baghouse	July 29, 2016
408-0010-X007	No. 1 Transition Building w/ Baghouse	July 29, 2016
408-0010-X008	No. 2 Transition Building w/ Baghouse	July 29, 2016
408-0010-X009	No. 2 Feed Processing Building w/ Baghouse	July 29, 2016
408-0010-X010	Waelz Iron Product Building w/ Baghouse	July 29, 2016
408-0010-X011	2000 HP Emergency Generator	July 29, 2016

2. The following baghouse IDs and descriptions were revised to match the facility's internal identification system:

Existing		Revised	
ID	Description	ID	Description
PC1	Waelz Kiln 1 Baghouse	PC1	Waelz Kiln 1 Product Collection Baghouse
PC2	Waelz Kiln 2 Baghouse	PC2	Waelz Kiln 2 Product Collection Baghouse
PC3	Waelz Kiln 3 Baghouse	PC3	Waelz Kiln Product Collection Baghouse
BC1	Feed Building 1 Baghouse 1	PBH1	Pellet/Receiving Building Baghouse 1
BC2	Feed Building 1 Baghouse 2	PBH2	Pellet/Receiving Building Baghouse 2
BC3	Feed Building 1 Baghouse 3	PBH3	Pellet/Receiving Building Baghouse 3
BC4	Transition Building 1 Baghouse	TBH1/2	Kilns 1 & 2 Transition Building Baghouse
BC5	Feed Processing Building Baghouse	RBBH1	Receiving Building Baghouse
BC6	Transition Building 2 Baghouse	TBH3	Kiln 3 Transition Building Baghouse
BC10	WIP Building Baghouse	WBH1	WIP Building Baghouse

3. The facility currently has combined anti-PSD limits of 0.85 lb/ton for SO₂, 0.457 lb/ton for VOC, and a throughput capacity of 350,000 TPY for Waelz Kiln No. 1 and No. 2. Waelz Kiln No. 3 has an anti-PSD limit of 1.04 lb/ton for SO₂, 0.903 lb/ton for VOC, and a throughput capacity of 175,000 TPY. The application proposes to combine the throughput limits for all three kilns to 525,000 TPY and have all three be subject to the stricter limits of 0.85 lb/ton for SO₂ and 0.457 lb/ton for VOC. This would result in a net decrease in potential emissions for the kilns.

Feed Processing Buildings w/ Four (4) Baghouses

This process begins when raw material (EAF dust) is received by rail in covered bottom-dump rail cars. These cars are unloaded inside either the Pellet/Receiving Building, which is maintained under negative pressure by three 75,000 cfm baghouse-controlled exhaust systems (PBH1, PBH2, and PBH3), or the Receiving Building, which is maintained under negative pressure by a 190,000 cfm baghouse (RBBH1).

The facility also has the capability of receiving EAF dust by pneumatically unloaded trucks or rail cars. The pneumatic unloading receiving bin is fitted with a baghouse bin-vent filter.

Upon entering either building, EAF dust is sprayed with water, which begins the conditioning and blending process. After conditioning, the material is blended for proper zinc and slag chemistry and then micropelletized in a cone pelletizer. The pellets are then transferred to a natural gas-fired rotary dryer in the Pellet/Receiving Building to remove moisture from the feed prior to entering the kilns. Dryer emissions vent to PBH2.

This area is comprised of the following sources:

Emission Point #	Description
PBH1, PBH2, PBH3	Pellet/Receiving Building w/ Feed Dryer & Three Baghouses
RBBH1	Receiving Building w/ Baghouse

Applicability

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, *"Major Source Operating Permits"*.
- These sources are subject to ADEM Admin. Code r. 335-3-4-.04 (1), *"Control of Particulate Emissions for Process industries – General"*.
- These sources are subject to ADEM Admin. Code r. 335-3-4-.01 (1), *"Control of Particulate Emissions – Visible Emissions"*.
- These sources are subject to 40 CFR 64, *"Compliance Assurance Monitoring."* Pre-control potential particulate matter emissions exceed 100 TPY.
- These sources have enforceable limits as a result of a review under the provisions of ADEM Admin. Code r. 335-3-14-.04, *"Air Permits Authorizing Construction in Clean Air Areas (Prevention of Significant Deterioration)"*.

Emission Standards:

- Opacity
 - ADEM Admin Code r. 335-3-4-.01(1)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%) percent opacity, as determined by a six (6) minute average. During one six (6) minute period a person may discharge into the atmosphere from any source emissions of an opacity not greater than forty (40%) percent.
- Particulate Matter
 - PM emissions from PBH1 and PBH2 shall not exceed the lesser of the combined anti-PSD limit of 3.9 lb/hr as required by ADEM Admin. Code r. 335-3-14-.04

OR

The allowable set by ADEM Admin Code r. 335-3-4-.04(1), which states no person shall cause or permit the emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \quad (P < 30 \text{ tons per hour})$$

$$E = 17.31 (P)^{0.16} \quad (P \geq 30 \text{ tons per hour})$$

Where E = Emissions in pounds per hour and P = Process weight per hour in tons per hour

- PM emissions from PBH3 and TBH1/2 (located in the Kiln Nos. 1 & 2 Transition Building) shall not exceed the lesser of the combined anti-PSD limit of 3.9 lb/hr as required by ADEM Admin. Code r. 335-3-14-.04 or the allowable set by ADEM Admin. Code r. 335-3-4-.04(1).
- PM emissions from RBBH1 shall not exceed the lesser of the anti-PSD limit of 4.8 lb/hr as required by ADEM Admin. Code r. 335-3-14-.04 or the allowable set by ADEM Admin. Code r. 335-3-4-.04(1).

EXPECTED EMISSIONS:

Emission Point	PM Emissions		Pb Emissions	
	lb/hr	TPY	lb/hr	TPY
PBH1	3.9	17.1	7.35E-03	0.03
PBH2			7.35E-03	0.03
PBH3	3.9	17.1	7.35E-03	0.03
TBH1/2			7.35E-03	0.03
RBBH1	4.8	21.0	0.02	0.08

PM emissions are based on permit limits. Lead emissions are estimates based on stack test results from February 2008 on PBH1 and PBH2 and a safety factor of fifty percent. In addition, fuel combustion by the feed dryer is expected to contribute the following criteria pollutant emissions based on AP-42 emissions factors.

Pollutant	lb/hr	TPY
CO	3.3	14.4
NOx	3.9	17.2
SO2	0.02	0.1
VOC	0.2	0.9
Pb	1.96E-05	8.59E-05

Compliance and Performance Test Methods and Procedures:

- Particulate Matter (PM) emissions tests shall be conducted in accordance with Method 5 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Lead emissions tests shall be conducted in accordance with Method 12 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Visible emission observations (VEO) shall be conducted in accordance with Method 9 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Instantaneous visible emissions observations (VEO) shall be conducted in accordance with Method 22 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).

Emission Monitoring:

- The baghouses PBH1, PBH2, PBH3, and RBBH1 are subject to monitoring requirements under 40 CFR 64 "Compliance Assurance Monitoring". The proposed monitoring approach is described in the Appendix.

Compliance Assurance Monitoring (CAM) Analysis:

- CAM is applicable to the Pellet/Receiving Building with three baghouses and the Receiving Building with one baghouse for particulate matter, since these processes have the pre-controlled potential to emit PM emissions greater than 100 TPY, and baghouses are used

to control emissions from the buildings. No other pollutants are emitted in quantities greater than the major source threshold, nor are these sources meeting a limit via a control device for any other pollutant. Therefore, CAM does not apply to any other pollutant for these buildings.

Recordkeeping and Reporting Requirements:

- These units are subject to the recordkeeping requirements of CAM described in the Appendix. (40 CFR Part 64)
- The Permittee shall maintain records of the daily pressure differential readings for each baghouse. Any deviations from the acceptable range (0 to 6 in. of W. C.) shall be documented along with any corrective actions taken and reported to the Department within two (2) working days. Records shall be maintained for a period of at least five (5) years. (ADEM Admin. Code r. 335-3-16-.05(c); 40 CFR Part 64)
- The Permittee shall maintain records of daily visible inspections of each baghouse exhaust. If any opacity is observed, a Method 9 shall be conducted and recorded and reported to the Department within two (2) working days. Records shall be kept of instances when the visible emissions exceed the acceptable level (six-minute period with an average opacity greater than 20% in any hour, excluding one six-minute period in any 60-minute period with 40% opacity or less) and the corrective action taken. Records shall be maintained for a period of at least five (5) years. (ADEM Admin. Code r. 335-3-16-.05(c); 40 CFR Part 64)

Waelz Kilns Nos. 1, 2, & 3 with Three (3) Baghouses

Waelz Kiln Nos. 1 and 2 are each fired by a 75 MMBTU/hr natural gas-fired burner located at their material discharge ends, while Kiln No. 3 is fired by a 55 MMBtu/hr natural gas-fired burner. Heated air flows from the burner (discharge) end toward the feed end, countercurrent to the material flow. The feed material undergoes a series of reduction and reoxidation reactions as it traverses the kiln. The oxidation reaction is sufficiently exothermic and provides the majority of the heat required by the process. The burner has a large turn-down ratio and sees limited durations of operation at full fire, generally at startup to get the process underway.

Zinc-oxide-rich dust is carried by the kiln air flow toward the feed end and then passed through a settling chamber. Heavy material, middling Waelz Zinc Oxide (WZO), that settles out in this chamber is collected and returned pneumatically to create a closed loop system. The settling process is controlled by three high efficiency bin vent filters (FBH1, FBH2, FBH3).

The light material that passes through the settling chamber is collected in the three large baghouses. PC1 is a shaker type, fourteen compartment baghouse that controls Kiln No. 1. PC2 is a pulse-jet type, fourteen compartment baghouse that controls Kiln No. 2. PC3 is a pulse-jet type, twelve compartment baghouse that controls Kiln No. 3. The material collected is the WZO product and is transferred to rail cars for sale.

The slag-like solids, Waelz Iron Product (WIP), exiting the kiln at the discharge end are very rich in iron and pass to a rotary cooler, which is maintained under suction by the kiln exhaust system and controlled by the WZO product collection baghouses. This WIP product, once cooled, is transferred to the WIP Building for storage to await sale.

Applicability

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, *"Major Source Operating Permits"*.
- These sources are subject to ADEM Admin. Code r. 335-3-4-.04 (1), *"Control of Particulate Emissions for Process Industries – General"*.
- These sources are subject to ADEM Admin. Code r. 335-3-4-.01 (1), *"Control of Particulate Emissions – Visible Emissions"*.
- These sources have enforceable limits in place in order to prevent them from being subject to the provisions of ADEM Admin. Code r. 335-3-14-.04, *"Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration]"*.

Emission Standards:

- Opacity
 - ADEM Admin Code r. 335-4-.01(3-5), states no person shall discharge particulate emissions of an opacity greater than twenty (20%) percent opacity, as determined by a six minute average, except that during each calendar quarter, the permittee may discharge into the atmosphere from the stack particulate with an opacity exceeding 20% for not more than 24 six minute periods of any calendar day, if such periods do not exceed 2.0% of the source calendar quarter operating hours for which opacity standard is applicable and for which the COMS is indicating valid data.
 - The permittee shall not discharge into the atmosphere from the kiln baghouse exhausts particulate emissions of an opacity greater than 22% averaged over each calendar day (ADEM Admin Code r. 335-4-.01(3-5)).
- Particulate Matter (PM)
 - PM emissions from Kiln No. 1 (PC1) shall not exceed the lesser of the Anti-PSD Limit of 18 lb/hr as required by ADEM Admin. Code r. 335-3-14-.04

OR

The allowable set by ADEM Admin Code r. 335-3-4-.04(1), which states no person shall cause or permit the emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \quad (P < 30 \text{ tons per hour})$$

$$E = 17.31 (P)^{0.16} \quad (P \geq 30 \text{ tons per hour})$$

Where E = Emissions in pounds per hour and P = Process weight per hour in tons per hour

- PM emissions from Kiln No. 2 (PC2) shall not exceed the lesser of the Anti-PSD limit of 10 lb/hr or the allowable set by ADEM Admin. Code r. 335-3-4-.04(1).
 - PM emissions from Kiln No. 3 (PC3) shall not exceed the lesser of the Anti-PSD limit of 10 lb/hr or the allowable set by ADEM Admin. Code r. 335-3-4-.04(1).
- Sulfur Dioxide (SO₂)
 - The SO₂ emissions from Kiln No. 1 (PC1), Kiln No. 2 (PC2), and Kiln No. 3 (PC3) shall

not exceed 0.85 lb/ton of material throughput equivalent to 223 TPY on 525,000 TPY throughput. (ADEM Admin. Code r. 335-3-14-.04, Anti-PSD)

- The three kilns shall process no more than 525,000 tons combined of material in any consecutive twelve-month period. (ADEM Admin. Code r. 335-3-14-.04, Anti-PSD)
- Nitrogen Oxides (NO_x)
 - The NO_x emissions from Kiln No. 1 (PC1) shall not exceed 19 lb/hr. (ADEM Admin. Code r. 335-3-14-.04, Anti-PSD)
 - The NO_x emissions from Kiln No. 2 (PC2) shall not exceed 10 lb/hr. (ADEM Admin. Code r. 335-3-14-.04, Anti-PSD)
 - The NO_x emissions from Kiln No. 3 (PC3) shall not exceed 10 lb/hr. (ADEM Admin. Code r. 335-3-14-.04, Anti-PSD)
- Carbon Monoxide (CO)
 - The CO emissions from Kiln No. 1 (PC1) shall not exceed 21.5 lb/hr. (ADEM Admin. Code r. 335-3-14-.04, Anti-PSD)
 - The CO emissions from Kiln No. 2 (PC2) shall not exceed 4.6 lb/hr. (ADEM Admin. Code r. 335-3-14-.04, Anti-PSD)
 - The CO emissions from Kiln No. 3 (PC3) shall not exceed 4.6 lb/hr. (ADEM Admin. Code r. 335-3-14-.04, Anti-PSD)
- Volatile Organic Compounds (VOC)
 - The VOC emissions from Kiln No. 1 (PC1), Kiln No. 2 (PC2), and Kiln No. 3 (PC3) shall not exceed 0.457 lb/ton of throughput equivalent to 120 TPY on 525,000 TPY material throughput. (ADEM Admin. Code r. 335-3-14-.04, Anti-PSD)
- Lead
 - The lead emissions from Kiln No. 1 (PC1) shall not exceed .25 lb/hr. (ADEM Admin. Code r. 335-3-14-.04, Anti-PSD)
 - The lead emissions from Kiln No. 2 (PC2) shall not exceed 0.23 lb/hr. (ADEM Admin. Code r. 335-3-14-.04, Anti-PSD)
 - The lead emissions from Kiln No. 3 (PC3) shall not exceed 0.23 lb/hr. (ADEM Admin. Code r. 335-3-14-.04, Anti-PSD)

EXPECTED EMISSIONS:

Pollutant	PC1		PC2		PC3		Total	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
PM	18.00	78.84	10.00	43.80	10.00	43.80	38.00	166.44
PM ₁₀	18.00	78.84	10.00	43.80	10.00	43.80	38.00	166.44
PM _{2.5}	18.00	78.84	10.00	43.80	10.00	43.80	38.00	166.44
CO	21.50	94.17	4.60	20.15	4.60	20.15	30.70	134.47
NO _x	19.00	83.22	10.00	43.80	10.00	43.80	39.00	170.82
SO ₂	22.95	74.38	22.95	74.38	22.95	74.38	68.85	223.13
Pb	0.25	1.10	0.23	1.01	0.23	1.01	0.71	3.11
VOC	12.34	39.99	12.34	39.99	12.34	39.99	37.02	119.96
CO ₂ e	44,790.67	152,686.33	44,790.67	152,686.33	44,790.67	152,686.33	134,372	458,059

¹ The PM emissions from TBH1/2 are combined emissions with PBH3 in the Pellet/Receiving Building.

Emissions from the three kilns are based on emissions limits. Greenhouse gas (GHG) emissions are based on natural gas combustion factors from 40 CFR 98 Subpart C and zinc production factors from 40 CFR 98 Subpart GG.

Compliance and Performance Test Methods and Procedures:

- Particulate Matter (PM) emissions tests shall be conducted in accordance with Method 5 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Sulfur Dioxide (SO₂) emissions tests shall be conducted in accordance with Method 6 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Nitrogen Oxide (NO_x) emissions tests shall be conducted in accordance with Method 7 or 7E of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Carbon Monoxide (CO) emissions tests shall be conducted in accordance with Method 10 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Lead emissions tests shall be conducted in accordance with Method 12 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Visible emissions observations (VEO) shall be conducted in accordance with Method 9 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Instantaneous VEO shall be conducted in accordance with Method 22 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).

Emission Monitoring:

- A continuous opacity monitoring system shall be installed on the kiln baghouse stacks, operated, and certified in accordance with Performance Specification 1 as found in Appendix B of 40 CFR Part 60. (ADEM Admin. Code r. 335-3-16-.05(c))
- The Permittee shall conduct particulate matter emissions tests on the three kilns annually, at intervals not to exceed 12 months. (ADEM Admin. Code r. 335-3-16-.05(c))
- The Permittee shall conduct lead emissions tests on the three kilns annually, at intervals not to exceed twelve months. (ADEM Admin. Code r. 335-3-16-.05(c))
- The Permittee shall monitor the sulfur content from each load received of carbon utilized in the Waelz kilns. The sulfur content of the carbon utilized in the Waelz kilns shall not exceed the sulfur content of the material used in the latest SO₂ compliance test. The Permittee may use vendor test data or shipment certifications to verify the sulfur content in the carbon. (ADEM Admin. Code r. 335-3-16-.05(c))

Compliance Assurance Monitoring (CAM) Analysis:

Pursuant to §64.1, “*Definitions*”, inherent process equipment is defined as any “equipment that is necessary for the proper or safe functioning of the process, or material recovery equipment that the owner or operator documents is installed and operated primarily for purposes other than compliance with air pollution regulations. Equipment that must be operated at an efficiency higher than that achieved during normal process operations in order to comply with the applicable emission limitation or standard is not inherent process equipment. For the purposes of this part, inherent process equipment is not considered a control device”.

The facility maintains that the baghouses associated with the three kilns is (PC1, PC2, PC3) are inherent process equipment. According to the application, the baghouses are utilized to recover product which would otherwise be lost. These devices would have been installed even if no regulations were applicable. Therefore, CAM does not apply.

Recordkeeping and Reporting Requirements:

- A written report of the kiln excess opacity emissions, as defined below, will be submitted to the Department for each calendar quarter within the month following the end of the quarter. The report will include the following information (40 CFR 60.65):
 - The date and time of commencement and completion of each time period of excess emissions.
 - The nature and cause of the excess emissions (if known) and the corrective action taken or preventative measures adopted.

- The date and time identifying each period during which the opacity monitoring system was inoperative (except for zero and span checks) and the nature of the system repairs or adjustments.
- When no excess emissions have occurred and the opacity monitoring system was not inoperative or did not require repairs or adjustments, such information will be stated in the report.
- Records shall be maintained of the original data charts, performance evaluations, calibration checks, adjustments and maintenance records, and other information regarding the opacity monitoring systems. (ADEM Admin. Code r. 335-3-16-.05(c))
- Records shall be maintained of the causes of excess opacity and corrective measures utilized to alleviate said emissions. (ADEM Admin. Code r. 335-3-16-.05(c))
- Records shall be maintained of any maintenance performed on the kiln baghouses. (ADEM Admin. Code r. 335-3-16-.05(c))
- Records shall be maintained of the monthly and twelve-month rolling total throughput of material processed by the kilns. (ADEM Admin. Code r. 335-3-16-.05(c))
- Records shall be maintained of the sulfur content in the carbon utilized in the kilns. (ADEM Admin. Code r. 335-3-16-.05(c))
- All records shall be maintained on site in a form suitable for inspection for a minimum of five years following the date of generation. (ADEM Admin. Code r. 335-3-16-.05(c))

Transition and Storage Buildings with Three (3) Baghouses

WIP exits the kilns and is conveyed through the Transition Buildings and transferred to 100-foot long rotary coolers. The Kiln No. 1 and 2 Transition Building is controlled by 75,000 cfm baghouse TBH1/2, and the Kiln No. 3 Transition Building is controlled by 75,000 cfm baghouse TBH3. Once cooled, the WIP is transferred to the WIP Building for storage to await sale. The WIP Building is maintained under negative pressure by 75,000 cfm baghouse WBH1.

Applicability

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, *"Major Source Operating Permits"*.
- These sources are subject to ADEM Admin. Code r. 335-3-4-.04 (1), *"Control of Particulate Emissions for Process industries – General"*.
- These sources are subject to ADEM Admin. Code r. 335-3-4-.01 (1), *"Control of Particulate Emissions – Visible Emissions"*.
- These sources are subject to 40 CFR 64, *"Compliance Assurance Monitoring."* Pre-control potential particulate matter emissions exceed 100 TPY.
- These sources have enforceable limits as a result of a review under the provisions of ADEM Admin. Code r. 335-3-14-.04, *"Air Permits Authorizing Construction in Clean Air Areas (Prevention of Significant Deterioration)"*.

Regulations

Emission Standards:

- Opacity
 - ADEM Admin Code r. 335-3-4-.01(1)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%) percent opacity, as determined by a six (6) minute average. During one six (6) minute period a person may discharge into the atmosphere from any source emissions of an opacity not greater than forty (40%) percent.
- Particulate Matter
 - PM emissions from TBH1/2 and PBH3 (in the Pellet/Receiving Building) shall not exceed the lesser of the combined anti-PSD limit of 3.9 lb/hr as required by ADEM Admin. Code r. 335-3-14-.04

OR

The allowable set by ADEM Admin Code r. 335-3-4-.04(1), which states no person shall cause or permit the emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \quad (P < 30 \text{ tons per hour})$$

$$E = 17.31 (P)^{0.16} \quad (P \geq 30 \text{ tons per hour})$$

Where E = Emissions in pounds per hour and P = Process weight per hour in tons per hour

- PM emissions from TBH3 shall not exceed the lesser of the anti-PSD limit of 1.9 lb/hr or the allowable set by ADEM Admin. Code r. 335-3-4-.04.
- PM emissions from WBH1 shall not exceed the lesser of the anti-PSD limit of 1.9 lb/hr or the allowable set by ADEM Admin. Code r. 335-3-4-.04.

EXPECTED EMISSIONS:

Emission Point	PM Emissions		Pb Emissions	
	lb/hr	TPY	lb/hr	TPY
PBH3	3.9	17.1	7.35E-03	0.03
TBH1/2			7.35E-03	0.03
TBH3	1.9	8.32	7.35E-03	0.03
WBH1	1.9	8.32	7.35E-03	0.03

PM emissions are based on permit limits. Lead emissions are estimates based on stack test results from February 2008 on PBH1 and PBH2 and a safety factor of fifty percent.

Compliance and Performance Test Methods and Procedures:

- Particulate Matter (PM) emissions tests shall be conducted in accordance with Method 5 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Lead emissions tests shall be conducted in accordance with Method 12 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Visible emission observations (VEO) shall be conducted in accordance with Method 9 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Instantaneous visible emissions observations (VEO) shall be conducted in accordance with Method 22 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).

Emission Monitoring:

- The baghouses TBH1/2, TBH3, and WBH1 are subject to monitoring requirements under 40 CFR 64 *"Compliance Assurance Monitoring"*. The proposed monitoring approach is described in the Appendix.

Compliance Assurance Monitoring (CAM) Analysis:

- CAM is applicable to the three buildings for particulate matter, since these processes have the pre-controlled potential to emit PM emissions greater than 100 TPY, and baghouses are used to meet emissions limits. No other pollutants are emitted in quantities greater than the major source threshold, nor are these sources meeting a limit via a control device for any other pollutant. Therefore, CAM does not apply to any other pollutant for these buildings.

Recordkeeping and Reporting Requirements:

- These units are subject to the recordkeeping requirements of CAM described in the Appendix. (40 CFR Part 64)

Two (2) 2,000 HP Emergency Engines

SDR uses two 2,000 HP compression ignition Emergency Engines (EG1 and EG3) to allow for the kilns' baghouse exhaust fans to continue to operate in the event of a utility power outage. These units use either diesel fuel or natural gas.

Applicability

- These units are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, *"Major Source Operating Permits"*.
- These units are subject to ADEM Admin. Code r. 335-3-4-.01 (1), *"Control of Particulate Emissions – Visible Emissions"*.
- These units have enforceable limits in place in order to prevent them from being subject to the provisions of ADEM Admin. Code r. 335-3-14-.04, *"Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration]"*.
- These units are subject to the applicable area source requirements for existing emergency engines of 40 CFR 63 Subpart ZZZZ, *"National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines"*.

Regulations

Emission Standards:

- Opacity
 - ADEM Admin Code r. 335-3-4-.01(1)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%) percent opacity, as determined by a six (6) minute average. During one six (6) minute period a person may discharge into the atmosphere from any source emissions of an opacity not greater than forty (40%) percent.
- Nitrogen Oxides
 - The hours of operation for each unit shall not exceed 500 hours in any consecutive 12-month period (ADEM Admin. Code r. 335-3-14-.04, Anti-PSD).
- Carbon Monoxide
 - The hours of operation for each unit shall not exceed 500 hours in any consecutive 12-month period (ADEM Admin. Code r. 335-3-14-.04, Anti-PSD).

- Sulfur Dioxide
 - These units shall burn natural gas or No. 2 fuel oil only. The sulfur content of fuel oil shall not exceed 0.05% by weight (ADEM Admin. Code r. 335-3-14-.04, Anti-PSD).

EXPECTED EMISSIONS:

Pollutant	lb/hr	TPY
PM	2.80	0.70
NOx	96.00	24.00
CO	22.00	5.50
SO2	1.62	0.40
VOC	2.82	0.70

Emissions are based on AP-42 emissions factors and a limit of 500 hours of operation per 12-month period for each engine.

Compliance and Performance Test Methods and Procedures:

- Nitrogen Oxide emissions tests shall be conducted in accordance with Method 7 or 7E of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Carbon Monoxide emissions tests shall be conducted in accordance with Method 10 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Visible emission observations (VEO) shall be conducted in accordance with Method 9 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Filterable and condensable PM emissions shall be determined in accordance with Method 5 of 40 CFR 60 or Method 201/201A of 40 CFR 60 (ADEM Admin. Code r. 335-3-1-.05).
- Sulfur dioxide emissions shall be determined in accordance with Method 6 of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- Volatile organic compound emissions shall be determined in accordance with Method 25A of 40 CFR 60, Appendix A (ADEM Admin. Code r. 335-3-1-.05).
- The sulfur content of the fuel oil delivered shall be measured in accordance with ASTM D4239-00. (ADEM Admin. Code r. 335-3-1-.05).

Emission Monitoring:

- These sources are subject to the applicable requirements of 40 CFR Part 63 Subpart ZZZZ, "National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines", to include the monitoring requirements in §63.6603(a), §63.6640 (f), and §63.6625(e)(f)(h)(i)

- §63.6603(a) If you own or operate an existing stationary RICE located at an area source of HAP emissions, you must comply with the requirements in Table 2d to this subpart and the operating limitations Table 2b to this subpart that apply to you.
- §63.6625(e) You must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.
- §63.6625(f) If you own or operate an existing emergency stationary RICE located at an area source of HAP emissions, you must install a non-resettable hour meter if one is not already installed.
- §63.6625(h) If you operate a new, reconstructed, or existing stationary engine, you must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to this subpart apply.
- §63.6625(i) If you own or operate a stationary CI engine that is subject to the work, operation or management practices in items 1 or 2 of Table 2c to this subpart or in items 1 or 4 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.
- §63.6640 (f) If you own or operate an emergency stationary RICE, you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1) through (4) of this section. In order for the engine to be considered an emergency stationary RICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through

(4) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (4) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

- (1) There is no time limit on the use of emergency stationary RICE in emergency situations.
- (2) You may operate your emergency stationary RICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (f)(3) and (4) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).
 - (i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.
 - (ii) Emergency stationary RICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.
 - (iii) Emergency stationary RICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
- (3) Emergency stationary RICE located at major sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.
- (4) Emergency stationary RICE located at area sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph

(f)(2) of this section. Except as provided in paragraphs (f)(4)(i) and (ii) of this section, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

- (i) Prior to May 3, 2014, the 50 hours per year for non-emergency situations can be used for peak shaving or non-emergency demand response to generate income for a facility, or to otherwise supply power as part of a financial arrangement with another entity if the engine is operated as part of a peak shaving (load management program) with the local distribution system operator and the power is provided only to the facility itself or to support the local distribution system.
- (ii) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:
 - (A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.
 - (B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
 - (C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
 - (D) The power is provided only to the facility itself or to support the local transmission and distribution system.
 - (E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

Compliance Assurance Monitoring (CAM) Analysis:

- CAM does not apply to the emergency engines since these units do not use a control device to meet an emissions limit.

Recordkeeping and Reporting Requirements:

- These sources are subject to the applicable requirements of 40 CFR Part 63 Subpart ZZZZ to include the applicable recordkeeping requirements in §63.6655.

- Records of monthly and twelve-month rolling totals of hours of operation shall be kept in a permanent form suitable for inspection and maintained for a minimum of five years following the date of generation (ADEM Admin. Code r. 335-3-16-.05(c)).
- Records of fuel oil sulfur content must be kept in a form suitable for inspection. Fuel supplier certifications may be used as records for fuel oil sulfur content. These records shall be retained for at least five years following the date of generation and shall be made available upon request (ADEM Admin. Code r. 335-3-16-.05(c)).

DRAFT

Appendix

Compliance Assurance Monitoring

Proposed Monitoring Approach

The facility proposes the following monitoring to satisfy the requirements of CAM:

Compliance Assurance Monitoring Plan for Units PBH1, PBH2, PBH3, TBH1/2, RBBH1, TBH3, & WBH1

	Indicator No. 1	Indicator No. 2
I. Indicator	Differential Pressure	Opacity
Measurement Approach	Inches of W. C. measuring the differential pressure across the baghouses are recorded daily.	Daily visual inspections. Visual opacity measurement using Method 9 procedures when required.
II. Indicator Range	The indicator range is 0 to 6 inches of W.C.	The indicator range is any six-minute period with an average opacity greater than 20% in any hour, excluding one six-minute period in any 60-minute period with 40% opacity or less.
III. Performance Criteria		
A. Data Representativeness	The differential pressure measurement is recorded daily. The gauge is accurate to the nearest 1 inch of W. C.	The opacity is observed daily.
B. Verification of Operation Status	Inspect and maintain differential pressure gauge and recording instruments in accordance with manufacturer specifications.	N/A
C. QA/QC Practices and Criteria	Maintenance of the baghouse or differential pressure gauge is conducted if there are any signs of erroneous readings and in accordance with manufacturer specifications.	Personnel are trained in Method 9 procedures.
D. Monitoring Frequency	Daily readings of the differential pressure across each baghouse.	Daily visual inspections of each baghouse exhaust.
E. Data Collection Procedures	A daily reading of the differential pressure will be recorded. Should the differential pressure reading exceed 6 inches W. C., the baghouse will be inspected and maintenance will be conducted as appropriate.	Daily visual inspections will be recorded. If opacity is noted from the stack, a Method 9 observation will be conducted and recorded.

F. Averaging period	N/A	Averaging period is six minutes.
---------------------	-----	----------------------------------

Monitoring Approach Justification

The seven baghouses for SDR's process buildings collect and control particulate emissions (and opacity from particulate emissions) from the building ventilation systems. Daily visual opacity checks will determine if there are any leaks or maintenance concerns associated with the baghouses. Method 9 observations will be conducted as needed.

The baghouses are also each equipped with a differential pressure gauge to monitor the pressure differential between the material side and clean side of the filter bags. A rise in the gauge level indicates increased difficulty for the air to pass through the filter bags indicating that maintenance may be needed. The differential pressure readings will be monitored daily and recorded electronically by a tracking chart for approximately 30-day intervals. At the end of the 30-day interval, SDR will print a graph documenting the pressure drop reading for that period for their records. The pressure differential gauge reads between 0 and 20 inches W. C. with an average daily reading between 0 and 6 inches W. C.